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THE BROWN DOG TICK, WITH SUGGESTIONS FOR ITS CONTROL

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The brown dog tick (Rhipicephalus sanguineus (Latr.)) is an important pest of dogs. While it is not known to carry any disease in this country except canine piroplasmosis, it breeds so rapidly that it causes a heavy drain on the vitality of the animals and is a source of great irritation to them. This tick is also an important household pest. Frequently it is scattered by dogs throughout dwellings, where it sometimes appears in great numbers around baseboards, window and door casings, curtains, and furniture. It seldom attaches to any other animal than the dog. The disease of dogs mentioned above apparently is not widespread in the United States.

This tick is normally an inhabitant of the warmer regions. It is most troublesome in the Southern States, especially Florida and Texas, but is also well established in most of the northern cities. Its spread is brought about mainly by the transportation of dogs from regions where ticks abound or from local services, such as infested kennels and hospitals.

This tick is essentially a domestic species. It does not occur in the woods or open country, as do many ticks, but is usually found concentrated where dogs are kept.

Life History

The adult females, after becoming fully engorged, are about one-third inch in length and bluish gray. They then release their hold on the dog and seek a hiding place nearby. They have a tendency to crawl upward and hence are often found hidden in cracks in the roofs of kennels or in the ceilings of porches. In houses a favorite hiding place is under the edge of a rug. In their hiding places they deposit from 1,000 to 3,000 eggs, which hatch after 19 to 60 days into minute, active, 6-legged seed ticks. When opportunity offers, these ticks attach to a dog and fill with blood in 3 to 6 days. The engorged seed ticks are bluish and about the size of a No. 8 shot. They drop from the dog and hide in cracks, and in 6 to 23 days molt their skins and become 8-legged, reddish-brown nymphs.

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After such attachment, they become engorged in 4 to 9 days. At this time they are oval, about the size of a No. 5 shot, and dark gray. Again they leave the host, hide away, and molt their skins in 12 to 29 days. They are now adult males and females (figs. 1 and 2), reddish brown, and very active when disturbed. In this stage they attach to various parts of the dog; the females become engorged in 6 to 50 days and then drop off as explained previously.

In each of the unengorged stages this tick is capable of living for long periods without food. For instance, some adults have lived in confinement for over 200 days.

Control Treatments

In combating this tick it is necessary to give attention not only to the treatment of the infested animals, but also to their sleeping places, which are usually heavily infested with all stages of the ticks.

Use of Derris.—Clipping long-haired dogs aids in keeping them free from ticks, but this is not necessary. There are a number of insecticides that may be used as washes or dips. Of these, derris wash is the most satisfactory. It is made by mixing 2 ounces of fine derris powder, 1 ounce of neutral soap, and 1 gallon of tepid water. The derris powder should contain at least 3 percent of rotenone (the main insecticidal constituent of the powder). This may be applied by putting the dog in a tub containing it, or it may be applied thoroughly with a brush, sponge, or dipper. The dip should be allowed to dry on; if necessary, the surplus liquid may be removed with a towel. The dip can be kept for at least a week. To prevent any tick from engorging and escaping from the dog, the wash should be applied at 3-day intervals. If the use of the wash is objectionable, the derris powder may be applied lightly next to the skin in all infested parts of the animal.

Do not permit the powder or dip to get into the dog's eyes.

Use of DDT.—DDT in some forms is satisfactory for the control of ticks on dogs. A dust containing 10 percent of DDT in pyrophyllite and a wash containing 1 percent of DDT as a wettable powder may be used, but DDT in kerosene and other oil solutions should not be applied to dogs, and the animals should not be permitted to lick themselves excessively immediately after any treatment with DDT. The dust or wash should be applied in the manner described for derris. Fully engorged females are sometimes difficult to kill with DDT, but treatment at 3-day intervals will keep dogs relatively free of ticks and prevent females from becoming fully engorged.

House infestations can be eradicated by the careful and thorough application of DDT to the premises in addition to the treatment applied to the dog. The form of DDT most convenient for use in houses is a

5-percent solution in highly refined kerosene. Solutions of this type are now widely marketed for use as residual fly sprays. The kerosene used is harmless to finishes on woodwork, furniture, or walls, but since some wallpapers are printed with oil-soluble inks, it is well to try a few drops on each surface to be sprayed to test for possible injury. When the drops of oil evaporate, they may leave a faint white film, which is the residue of DDT and possesses insecticidal action. The excess film should wipe off easily, leaving no visible deposit or permanent stain.

The spray may be applied with any type of hand or mechanical sprayer. It should be applied to walls, woodwork, floors, floor coverings, the under side of furniture, curtains, draperies, behind pictures, and in any other places where ticks are likely to be hiding in rooms to which the dog is admitted. Bedrooms are often heavily infested, and in such cases the bed should be thoroughly sprayed. The application should be sufficiently heavy to leave noticeable moisture on the treated surface.

This treatment will kill ticks that are active at the time it is applied. Ticks that are hiding in well-protected places will not be killed at once. However, when they emerge from hiding to seek a blood meal they will be killed by the residual DDT if they are forced to walk over a sprayed surface. It may be several weeks before all such ticks have emerged and died. For this reason prompt eradication is rarely observed. The usual experience is to observe some reduction in active ticks during the first week after treatment, a great reduction during the second and third weeks, and few or no ticks after about a month. If the first treatment is thorough a second should not be needed, but if ticks are found in numbers after the third week a second treatment should be applied.

A dust containing 10 percent of DDT in pyrophyllite may be used instead of the spray whenever more convenient. The dust may be blown into cracks and crevices more easily than the spray, but in exposed places it is unsightly, and unless it is left in place the residual value is lost. It may be applied with a bellows or small hand duster.

DO NOT let the spray or dust get into foods or food containers.

DO NOT let the spray or dust get into fish bowls or aquaria.

DO NOT leave DDT containers where they may endanger children or pets.

DO NOT use kerosene spray around open flames.

DO NOT inhale excessive amounts of DDT.

DO NOT wipe the film of residual DDT off surfaces where it is not objectionable.

Infested dogs should be kept in one place, especially during their sleeping hours. This more or less confines the ticks to that place and makes the treatment easier. If the infested animals sleep in kennels,

sheds, or on porches, these should be thoroughly sprayed with 5 percent of DDT in kerosene, water emulsion, or water suspension, or dusted with 10 percent of DDT in pyrophyllite. Infested yards and runways should be dusted with 10 percent of DDT in pyrophyllite or sprayed with 0.5 percent of DDT in a water suspension or emulsion. These materials are not injurious to plants. All vegetation, the ground, and sides of adjacent buildings should be wet with the spray. The water suspension and, to some extent, the emulsion leave a whitish deposit which might be objectionable on some surfaces. It will be noted that the spray recommended for outdoor use is only one-tenth as strong as the spray recommended for inside use. This weaker solution is necessary because a larger volume is required to give sufficient coverage of DDT.

Other Treatments.--Creosote oil, without dilution, has been applied with good results to kennels, sheds, and fences in the South where the tick overwinters out of doors. This material is the same as that used for preventing decay of posts and timbers. It stains and is very caustic; therefore, it should not be used on porches or in houses, and should not be allowed to come in contact with animals or plants. It penetrates wood and cracks and can be relied upon to destroy with a single treatment practically all ticks in a building, but it has no residual action. It should not be used on metal.

The use of a gasoline torch in concrete or other fireproof buildings is satisfactory for the destruction of ticks.

In dog and cat hospitals the cages and buildings should be so constructed as to reduce hiding places for ticks to a minimum. Smooth concrete floors and walls are desirable, and cages made of iron give much less opportunity for the ticks to hide than do wooden ones.

Fumigation of infested houses is seldom advisable, because the ticks are usually present in entryways, around porches, and in out-buildings where they cannot be reached with a fumigant. Furthermore, the tick is very resistant to fumigants.



Figure 1.--The male brown dog tick as seen from above. About 20 times natural size.



Figure 2.--The female brown dog tick as seen from above. About 20 times natural size. After attachment to a dog for a few days the body of the female becomes greatly distended with blood.

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